PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Commissioner
US Department of Commerce
United States Patent and Trademark Office, PCT
2011 South Clark Place Room CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 22 February 2001 (22.02.01)	
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International filing date (day/month/year) 02 June 2000 (02.06.00)	**Priority date** (day/month/year) 07 June 1999 (07.06.99)
Applicant BAILEY, Thomas, William et al	

1. The designated Office is hereby notified of its election made:

[X] in the demand filed with the International Preliminary Examining Authority on:

08 January 2001 (08.01.01)

[ ] in a notice effecting later election filed with the International Bureau on:

2. The election [X] was

[ ] was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

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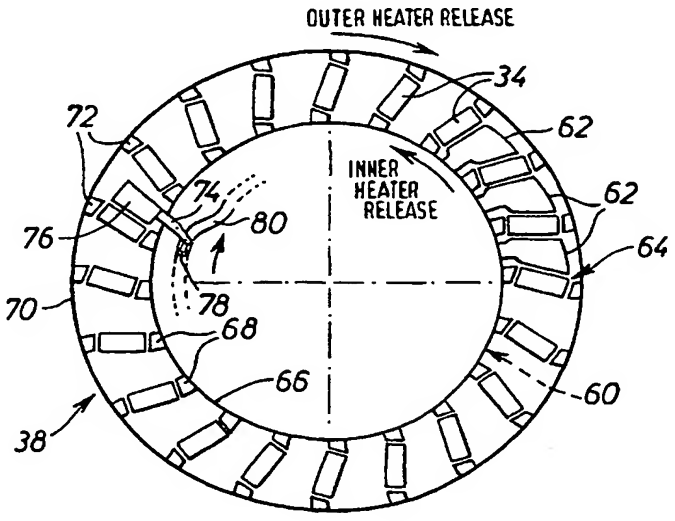
(54) Title: APPARATUS AND METHOD FOR WRAPPING ARTICLES, PARTICULARLY GROUPS OF CIGARETTES



(57) Abstract: In wrapping apparatus, particularly for enclosing articles consisting of or containing groups of cigarettes in wrapper material, the articles (34) are received in a pocketed drum (38) in which at least one overlapped region of the wrapper material is heat sealed. Preferably opposed side seams and an end flap of the wrapper are sealed, so as substantially to complete the enclosure of the article while on the drum. Side seal heaters (68, 72) carried by the drum (38) may be mounted on respective annular carriers (66, 70) which are rotatably displaceable to remove the heaters from contact with the articles (34) if the drum is stopped for an extended period. End seal heaters (76) may be pivotally mounted on the drum (68) and operated by cam means (78, 80) to fold an end flap of the wrapper into an overlapped position.

WO 00/75017 A1

APPARATUS AND METHOD FOR WRAPPING ARTICLES, PARTICULARLY GROUPS OF CIGARETTES

This invention relates to a wrapping apparatus and method, particularly but not exclusively for wrapping articles including or containing groups of rod-like articles of the tobacco industry such as cigarettes or cigarette filter rods.

Cigarette packs, particularly those comprising a hinged lid pack, are commonly wrapped in heat sealable transparent plastics wrapper material, which assists in protecting the packet and maintaining freshness of its contents. So-called soft packs have a wrapper material, often including a metal layer or a metalised plastics laminate, which is sealed around a group of cigarettes. WO98/22367 and WO98/22368 disclose a cigarette pack in which wrapper material comprising a sealed barrier layer, which may comprise a metalised plastics laminate, is formed around a group of cigarettes partly surrounded by an inner frame. The present invention is particularly but not exclusively useful in connection with wrapping articles including or containing groups of cigarettes in the production of packs in any of these styles.

According to one aspect of the invention, apparatus for wrapping articles, particularly articles consisting of or containing groups of rod-like articles, comprises a rotary conveyor provided with a series of locations each of which is arranged to receive at a first rotational position of the conveyor an article and a wrapper at least partly surrounding the article and having at least one overlapped region, and heat sealing means carried with the conveyor and arranged to heat seal said overlapped region before discharge of the article and wrapper at a second rotational position of the conveyor.

According to another aspect of the invention, a method of wrapping articles, particularly articles consisting of or containing groups of rod-like articles, comprises the steps of conveying an article and a wrapper at least partly surrounding the article on a rotary path, and forming at least one heat seal at an overlapped region of the wrapper on said path. In a preferred arrangement, wherein said overlapped region includes spaced regions for forming side seals, the method includes the step of forming side seals on substantially opposite sides of said article substantially simultaneously on said path. At least one end

seal may be formed on said path, and the method may include the step of folding an end flap into an overlapped position on said path prior to forming said at least one end seal.

As mentioned, the apparatus and method of the invention may be used in the wrapping of cigarette groups in wrapper material, eg to wrap cigarette packs, or in the production of soft packs or packs of the type disclosed in said WO97/42097 or WO97/42098. However, it will be appreciated that the invention is applicable to wrapping other articles, particularly those articles each having generally the shape of a right parallelepiped, irrespective of its constituents or contents.

Although it is preferred that the material of the wrapper is itself heat-sealable, the invention is applicable also to materials to which an adhesive which can be set or dried by heat has been applied at appropriate places in relation to the overlapped region to be sealed.

The invention will be further described, by way of example only, with reference to the accompanying diagrammatic drawings, in which:

Figure 1 is a perspective schematic view of a cigarette packing machine,

Figure 2 is a view showing product feed through the machine of Figure 1,

Figure 3 is an end view of a sealing drum of the machine of Figure 1,

Figure 4 is an enlarged view of a detail of the sealing drum shown in Figure 3,

Figure 5 is a view in the direction of arrow V in Figure 4,

Figure 6 is an end view of an alternative sealing drum usable in a machine similar to that of Figure 1,

Figure 7 is a view in the direction of arrow VII in Figure 6, and

Figure 8 is a sectional view on the line VIII-VIII in Figure 6.

Referring to Figures 1 and 2, a machine for producing hinged lid packets containing wrapped cigarette groups, which may be in the form of resealable inner packs such as disclosed in said WO98/22367 or WO98/22368, includes a cigarette hopper 10, which delivers cigarettes downwards to a group forming region or regions in which groups 12 of cigarettes are formed and subsequently

plunged into individual pockets of a collation conveyor belt 14. The groups 12 are received in each pocket on an inner frame 16 delivered to the belt 14 at a position upstream of the hopper 10 and cut from an inner frame reel 18. Presence and condition of cigarettes in each group 12 are checked by ends detectors 20 alongside the belt 14.

Each cigarette group 12, together with its folded inner frame 16, is pushed from the pocket on belt 14 along a linear conveyor path 22 on which it intercepts a wrapper section 24 at a plunge position 26, such that the cigarette group 12 and inner frame 16 become partially enveloped in the wrapper section (ie the wrapper section forms a U around its leading end).

Each wrapper section 24 is a composite panel comprising an inner foil section, delivered from a reel 28, and an outer label section, delivered from a reel 30. The foil and label webs are delivered in overlying relationship to a cutting unit 32, which severs leading ends of the webs to form successive composite wrapper sections 24. Alternatively each wrapper section 24 may be obtained from a single reel, consisting of a foil web having pre-applied labels. As a further option, the wrapper sections 24 may be foil sections obtained from a single reel, each section being defined by perforations or pre-formed score lines across the web of the reel.

Downstream of the plunge position 26, wrapping and folding of the wrapper section 24 around the group 12 and inner frame 16 is partially completed in conventional manner, eg using plough and tuck folders as used on hinged lid packing machines manufactured by the applicants, to form a partially-completed pack 34. The form of the pack 34 is shown in Figure 5. Tack heater bands 36 may be provided to temporarily hold the side flaps in place before the pack 34 is delivered to a pocketed sealing drum 38 at which heat sealing of the overlapped edges of the wrapper section 24 is completed. The material of each wrapper section 24 is heat-sealable. As an alternative, where the material is not heat-sealable, adhesive could be applied upstream of the bands 36.

After heat sealing has been completed in the sealing drum 38, the pack 34 is delivered to a blank folding turret 40, at which it is received in a pocket 42 in which a hinged lid blank 44 has already been received from a blank feed and

gumming unit 46. The blank 44 is folded and sealed around the pack 34 in the turret 40. Delivery of completed packets 48 is by way of a linear conveyor 50 to a drying drum 52 at which the adhesive of the folded blank 44 is cured and/or dried so that finished packets may be delivered along an exit conveyor line 54.

It will be understood that movement of each of the pocketed conveyors 14, 38, 40, and 52 is generally intermittent and in steps corresponding to the pitch between adjacent respective pockets, so that at least transfer to or from the respective conveyor normally occurs while the conveyor is stationary, although in principle the machine may operate continuously.

The machine may readily be adapted to produce packs 34, ie without an outer hinged lid packet, by omission of the turret 40.

Figures 3-5 show more details of the sealing drum 38. This comprises a central hub 60 from which extend in a generally radial direction a series of profiled projections 62 (only three of which are shown in Figure 3) which at least partially define between them the pockets 64 in which the packs 34 are held. Rotatable about the same axis as the hub 60 is an inner ring 66 carrying a series of circumferentially-spaced inner heater elements 68, and also an outer ring 70 carrying a series of circumferentially-spaced outer heater elements 72. In normal operation the hub 60 and rings 66 and 70 rotate intermittently together, with the heater elements 68 and 72 aligned with the pockets 64 so as to provide heat to seal the side seams of the packs 34. This is the position shown in Figure 3. Note that the side faces of the projections 62 are not radial but are inclined at relatively small angles to a radial direction, so that packs 34 held in the pockets 64 are correspondingly inclined, as are the operating faces of the heater elements 68 and 72. When the machine is stopped, eg because of a malfunction, the inner and outer rings 66, 70 can be rotated relative to the central hub 60 by an amount sufficient to withdraw the respective heater elements 68, 72 from the faces of the packs 34 held in the pockets 64: this avoids overheating by prolonged contact between the packs and the heater elements. This displacement of the heater elements 68, 72 by relative rotation, which as shown in Figure 3 consists of anti-clockwise movement of the inner

ring 66 and clockwise rotation of the outer ring 70, is facilitated by the inclined orientation of the pockets 64 and corresponding faces of the heater elements.

The heater elements 68 and 72 complete side sealing of the longitudinal seams of the packs 34. End sealing, which is required only at the trailing end of each pack 34, is also carried out on the drum 38.

Associated with each pocket 64 and carried by the central hub 60 is a series of pivoted levers 74 (only one of which is shown in Figure 3) each carrying at its outer end a heater element 76 and at its inner end a cam lever and roller 78 which is engaged in a stationary cam track 80. As best seen in Figures 4 and 5, the heater element 76 is aligned with the end of the pack 34 and is movable under operation of the cam roller 78 and cam track 80 from its position shown in the drawings to the position indicated at 76A in Figure 5 at which an end flap 34A of the pack 34 is held and sealed against the main body of the pack. Note that the movement of the element 76 into its sealing position performs the operation of folding the end flap 34A. The heater element 76 is maintained in position against the pack for sufficient time to effect the seal, the cam track 80 being arranged so that subsequently the lever 74 is returned to the position shown in Figures 3 and 4 at least prior to the respective pockets 64 receiving a new pack 34. Means (not shown) may be provided for returning the lever 74 to its inoperative position (ie with the heater element 76 out of contact with the pack 34) if the machine stops for an extended period (so as to prevent overheating).

The orientation of the pack 34 in the pockets 64 corresponds with the orientation of the drum 38 as shown in Figures 1 and 2. Figures 6-8 illustrate an alternative drum 138 in which the axis of the drum is disposed at right angles to that of the drum 38 (ie the drum 138 is orientated in a plane parallel to that of the drum 52). In the drum 138 pockets 164 are defined and carried by a central drum assembly 160. Heater elements 168, 172, which engage with respective side seams of the packs 34 in the pockets 164, are carried by respective discs 167, 171 which are coaxial and rotatable with the hub assembly 160 and disposed adjacent the opposite end faces of the assembly. The discs 167, 171 can be rotated relative to the assembly 160 to displace the heater elements 168,

172 from the side seams of the packs 34 in the event that the machine stops for an extended period. In the drum 138 the pockets 164 may be so arranged that the respective packs 34 are disposed so that their side faces are slightly inclined to a plane which is perpendicular to the axis of the drum. The operative faces of the heater elements 168, 172 may be correspondingly inclined. In this way, on rotation of the discs 167, 171 to displace the heater elements 168, 172 from the side seams of the packs 34, separation may be achieved without rubbing or sliding movement of the heater elements across the respective side face.

End sealing of the pack 34 in the drum 138 may be carried out by a cam-operated pivoted lever 174 carrying a heater/folder element 176, as indicated schematically in Figure 6, which cooperates with a cam track 180 in an analogous manner to operation of the lever 74 and element 76; note that the heater/folder element 176 is disposed in a circumferential plane to correspond with the orientation of the packs 34 in the pockets 164.

Claims

1. Apparatus for wrapping articles, particularly articles consisting of or containing groups of rod-like articles, comprising a rotary conveyor provided with a series of locations each of which is arranged to receive at a first rotational position of the conveyor an article and a wrapper at least partly surrounding the article and having at least one overlapped region, and heat sealing means carried with the conveyor and arranged to heat seal said overlapped region before discharge of the article and wrapper at a second rotational position of the conveyor.

2. Apparatus as claimed in claim 1, wherein the rotary conveyor comprises a pocketed drum.

3. Apparatus as claimed in claim 1 or claim 2, wherein the heat sealing means comprises a series of heater means, at least one heater means being associated with each of said locations.

4. Apparatus as claimed in claim 3, including series of first and second opposed heater means associated with each location for heat sealing overlapped regions on opposite sides of an article at said location.

5. Apparatus as claimed in claim 3 or claim 4, including means for moving said respective heater means into and out of operative positions at said locations.

6. Apparatus as claimed in claim 5, including at least one series of heater means mounted on a carrier, said moving means comprising means for displacing said carrier relative to said locations.

7. Apparatus as claimed in claim 6, wherein said displacing means comprises means for rotationally displacing said carrier relative to an axis of said rotary conveyor.

8. Apparatus as claimed in claim 6 or claim 7, wherein said carrier is annular and supports said heater means in radially outer or radially inner positions relative to said locations.

9. Apparatus as claimed in claim 8, wherein said carrier supports a series of first heater means in a radially outer position, including a further annular carrier supporting a series of second heater means in a radially inner position.

10. Apparatus as claimed in claim 6 or claim 7, wherein said carrier supports said heater means in axially adjacent positions relative to said locations.

11. Apparatus as claimed in claim 10, wherein said carrier supports a series of first heater means in an axially adjacent position on one side of said locations, including a further carrier supporting a series of second heater means in an axially adjacent position on the other side of said locations.

12. Apparatus as claimed in any of claims 5 to 11, wherein said locations are disposed so as to present respective faces of articles at inclined orientations, and said heater means are provided with correspondingly inclined faces, so as to facilitate displacement of said heater means relative to said articles by said moving means.

13. Apparatus as claimed in any preceding claim, wherein the heat sealing means comprises a series of end seal heaters, each of which includes an actuable element movable into and out of an operative position with a respective location.

14. Apparatus as claimed in claim 13, wherein the actuable element is arranged to complete a folding action on a wrapper of an article in said respective location on movement into said operative position.

15. Apparatus as claimed in claim 14, wherein the actuable element includes a pivoted lever operated by cam means on rotation of said rotary conveyor.

16. Apparatus as claimed in any of claims 13 to 15, wherein the actuable element is movable in a plane which is transverse to an axis of the rotary conveyor.

17. Apparatus as claimed in any of claims 13 to 15, wherein the actuable element is movable in a plane which is generally parallel to an axis of the rotary conveyor.

18. Apparatus as claimed in any preceding claim, including means for delivering successive articles to said rotary conveyor at said first rotational position in a direction substantially parallel to an axis of said rotary conveyor.

19. Apparatus as claimed in any preceding claim, including means for delivering successive articles to said rotary conveyor at said first rotational position in a direction substantially transverse to an axis of said rotary conveyor.

20. Apparatus as claimed in claim 18 or 19, including means for transferring wrapped articles from said rotary conveyor towards further rotary conveyor means in a direction parallel to the direction of conveyance of said delivering means.

21. A method of wrapping articles, particularly articles consisting of or containing groups of rod-like articles, comprising the steps of conveying an article and wrapper at least partly surrounding the article on a rotary path,

and forming at least one heat seal at an overlapped region of the wrapper on said path.

22. A method as claimed in claim 21, wherein said region includes spaced regions for forming side seals, including the step of forming side seals on substantially opposite sides of said article substantially simultaneously on said path.

23. A method as claimed in claim 21 or 22, including the step of forming at least one end seal on said path.

24. A method as claimed in claim 23, including the step of folding an end flap into an overlapped position on said path prior to forming said at least one end seal.

25. Apparatus for wrapping articles, substantially as herein described with reference to Figures 1-5 or Figures 6-8 of the accompanying drawings.

26. A method of wrapping articles, substantially as herein described with particular reference to Figures 1-5 or Figures 6-8 of the accompanying drawings.

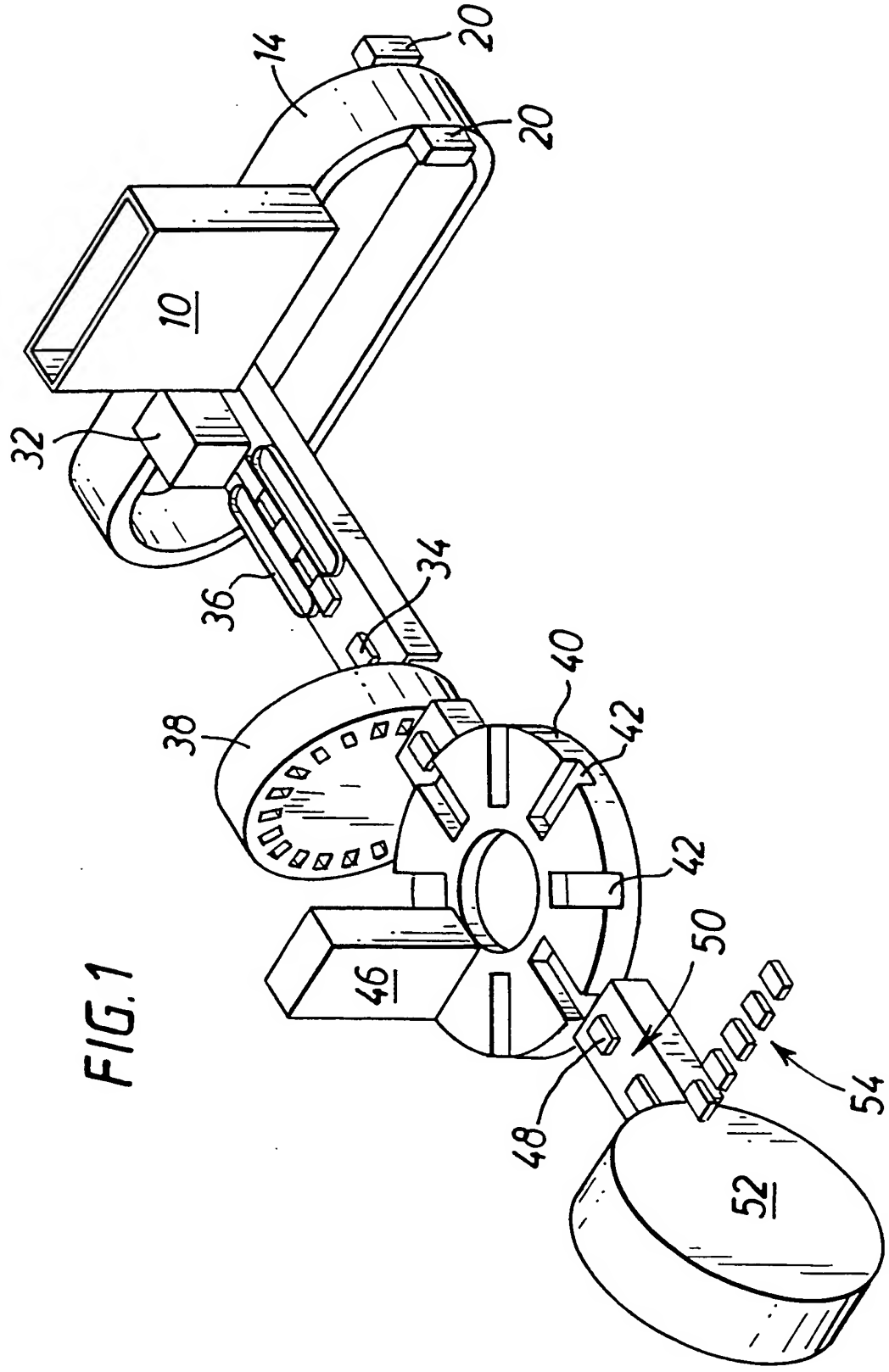


FIG. 1

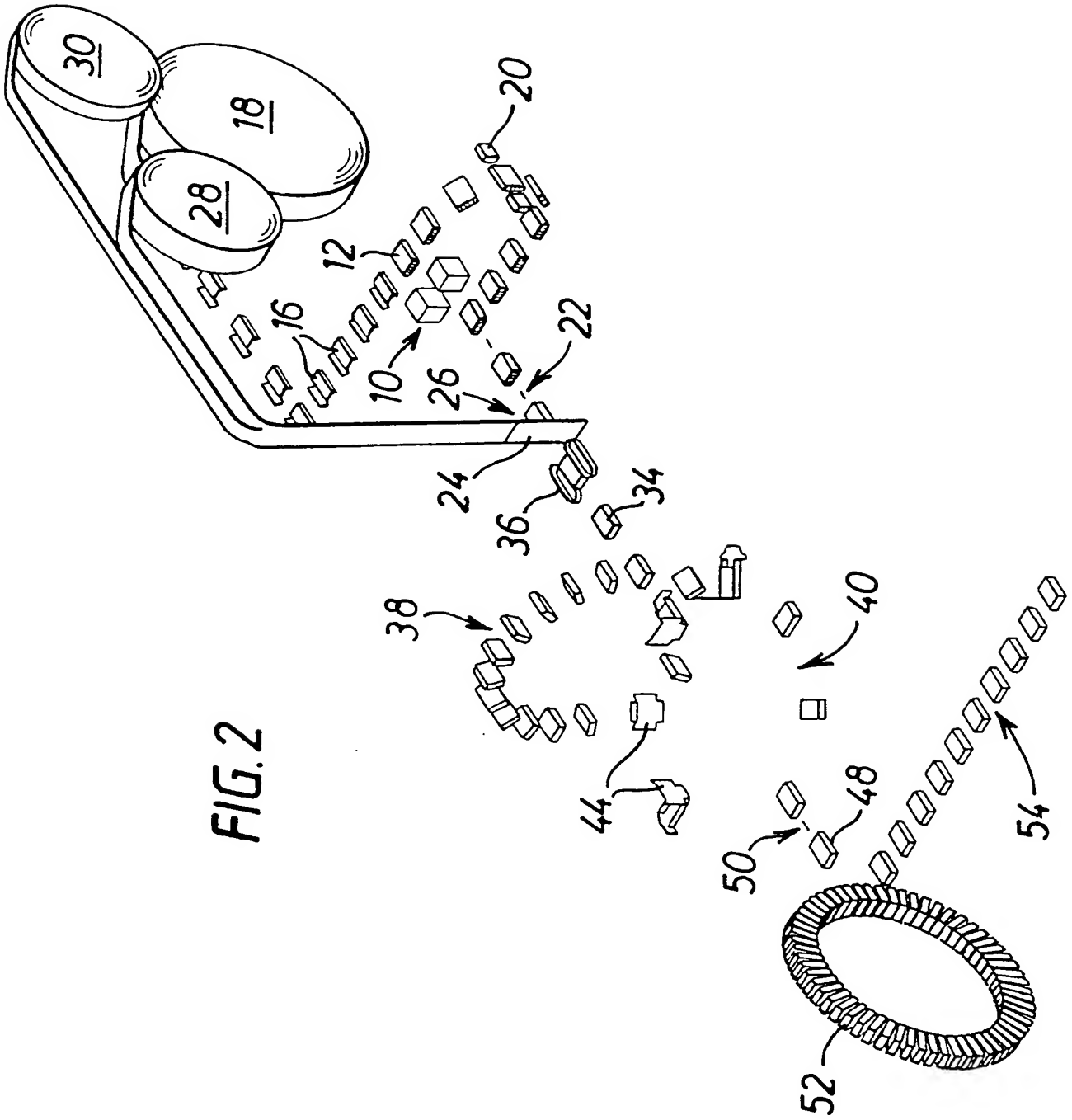


FIG.2

FIG.3

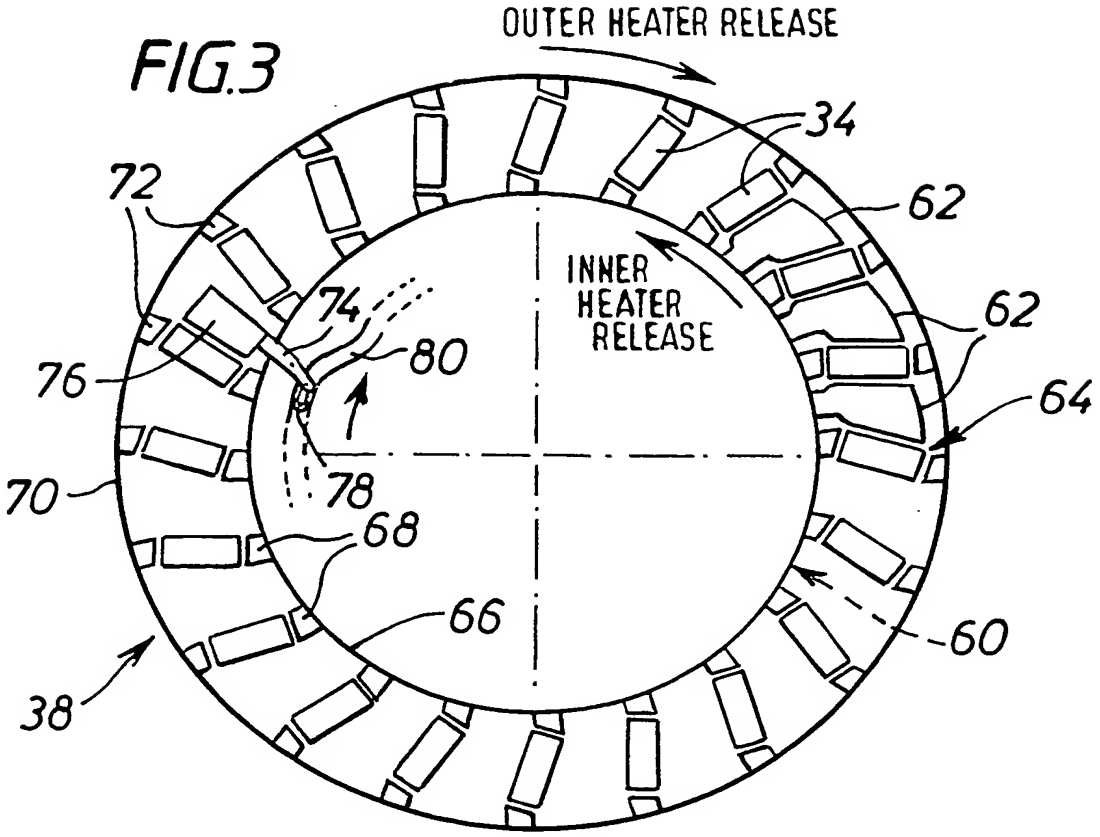


FIG.4

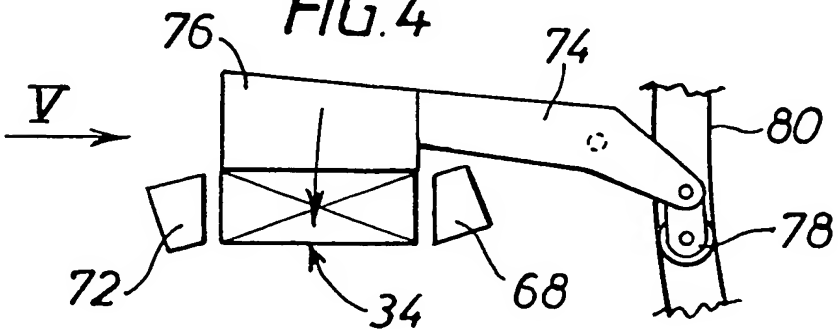


FIG.5

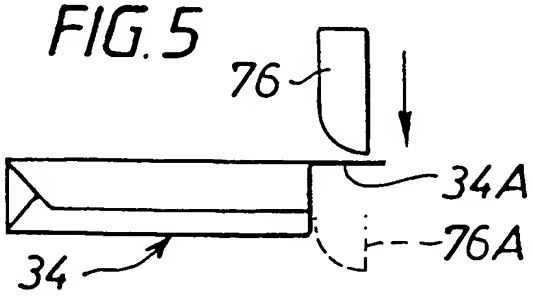


FIG.6

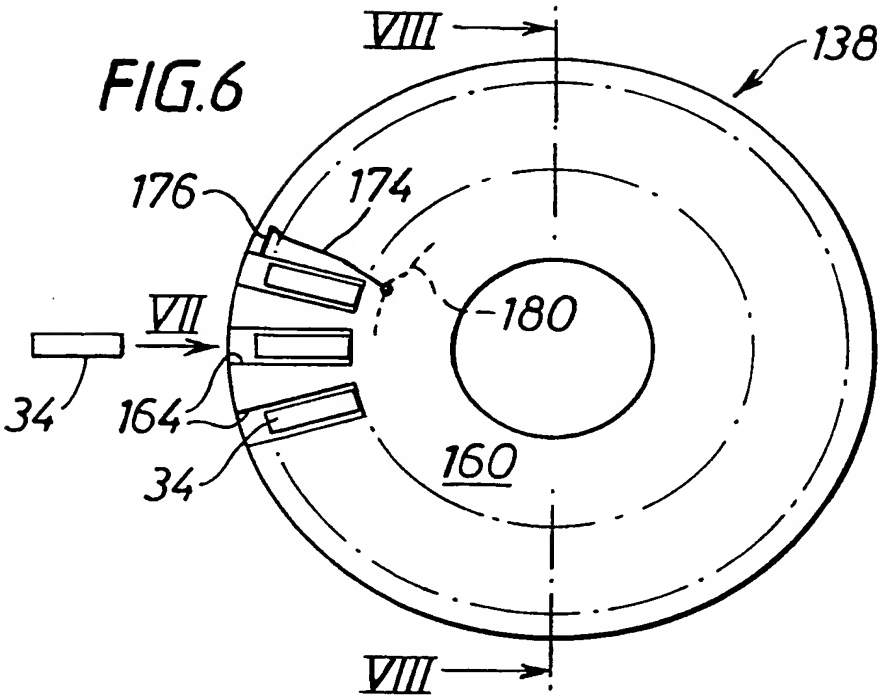


FIG.7

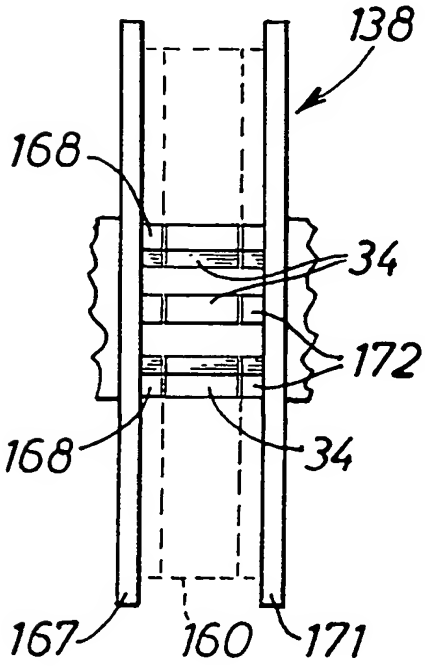
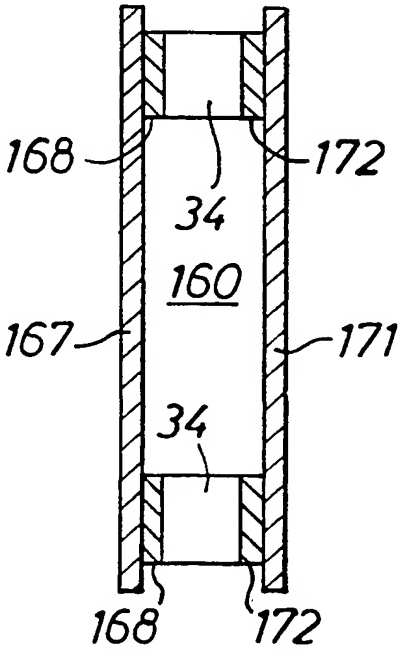


FIG.8



INTERNATIONAL SEARCH REPORT

Intern[illegible]lication No
PCT/GB 00/02147

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B65B19/22 B65B51/16

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 B65B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	EP 0 553 636 A (TOKYO AUTOMATIC MACH WORKS) 4 August 1993 (1993-08-04) column 14, line 49 -column 16, line 7; figures 10-13	1-3,5, 19,21 6,13,17, 23,24
Y	GB 2 206 327 A (GD SPA) 5 January 1989 (1989-01-05) page 6, line 7 -page 10, line 15; figures	6,13,17, 23,24
X	GB 2 235 913 A (GD SPA) 20 March 1991 (1991-03-20) page 9, line 20 -page 10, line 15; figures	1-3,5, 19,21
A	GB 2 258 187 A (GD SPA) 3 February 1993 (1993-02-03)	
A	EP 0 514 203 A (PHILIP MORRIS) 19 November 1992 (1992-11-19)	

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
4 September 2000	12/09/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Jagusiak, A

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INTERNATIONAL SEARCH REPORT

Interr[illegible]lication No
PCT/GB 00/02147

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2 220 910 A (HAUNI WERKE KOERBER & CO KG) 24 January 1990 (1990-01-24)	

INTERNATIONAL SEARCH REPORT

Information on patent family members

Intern al Application No
PCT/GB 00/02147

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		JP 2109810 A	23-04-1990

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	**FOR FURTHER ACTION** see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
NIS/DC/33421		
International application No.	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/GB 00/ 02147	02/06/2000	07/06/1999
Applicant		
MOLINS PLC		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 03 sheets.

[X] It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language,** the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

[ ] the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

[ ] contained in the international application in written form.

[ ] filed together with the international application in computer readable form.

[ ] furnished subsequently to this Authority in written form.

[ ] furnished subsequently to this Authority in computer readble form.

[ ] the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

[ ] the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. [ ] **Certain claims were found unsearchable** (See Box I).

3. [ ] **Unity of invention is lacking** (see Box II).

4. With regard to the **title,**

[ ] the text is approved as submitted by the applicant.

[X] the text has been established by this Authority to read as follows:

APPARATUS AND METHOD FOR WRAPPING ARTICLES,PARTICULARLY GROUPS OF CIGARETTES

5. With regard to the **abstract,**

[X] the text is approved as submitted by the applicant.

[ ] the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. Th applicant may, within one month from th date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No. 03

[ ] as suggested by th applicant.

[ ] because the applicant failed to suggest a figure.

[X] because this figure better characterizes the invention.

[ ] None of the figures.

INTERNATIONAL SEARCH REPORT

Inte[redacted]nal Application No
PCT/GB 00/02147

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B65B19/22 B65B51/16

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 B65B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	EP 0 553 636 A (TOKYO AUTOMATIC MACH WORKS) 4 August 1993 (1993-08-04) column 14, line 49 -column 16, line 7; figures 10-13	1-3,5, 19,21 6,13,17, 23,24
Y	GB 2 206 327 A (GD SPA) 5 January 1989 (1989-01-05) page 6, line 7 -page 10, line 15; figures	6,13,17, 23,24
X	GB 2 235 913 A (GD SPA) 20 March 1991 (1991-03-20) page 9, line 20 -page 10, line 15; figures	1-3,5, 19,21
A	GB 2 258 187 A (GD SPA) 3 February 1993 (1993-02-03)	
A	EP 0 514 203 A (PHILIP MORRIS) 19 November 1992 (1992-11-19)	

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
4 September 2000	12/09/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Jagusiak, A

1

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 00/02147

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2 220 910 A (HAUNI WERKE KOERBER & CO KG) 24 January 1990 (1990-01-24)	

1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/GB 00/02147

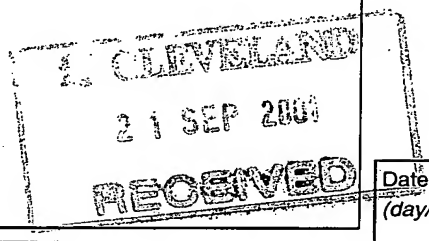
Patent document cited in search report	Publication date	Patent family memb r(s)	Publication date
EP 0553636 A	04-08-1993	JP 5201525 A	10-08-1993
		JP 5213311 A	24-08-1993
		JP 5213321 A	24-08-1993
		DE 69301665 D	11-04-1996
		DE 69301665 T	17-10-1996
		US 5442894 A	22-08-1995
		JP 5270508 A	19-10-1993
GB 2206327 A	05-01-1989	IT 1207733 B	25-05-1989
		BR 8803051 A	10-01-1989
		DE 3818622 A	12-01-1989
		JP 1070320 A	15-03-1989
		US 4887408 A	19-12-1989
GB 2235913 A	20-03-1991	IT 1235598 B	11-09-1992
		BR 9004271 A	03-09-1991
		DE 4028308 A	28-03-1991
		FR 2651745 A	15-03-1991
		JP 2846440 B	13-01-1999
		JP 3176320 A	31-07-1991
		US 5003755 A	02-04-1991
GB 2258187 A	03-02-1993	IT 1252457 B	16-06-1995
		DE 4225069 A	04-02-1993
		US 5410858 A	02-05-1995
EP 0514203 A	19-11-1992	AT 149127 T	15-03-1997
		AU 656960 B	23-02-1995
		AU 1627092 A	19-11-1992
		BR 9201832 A	05-01-1993
		CA 2068568 A	16-11-1992
		CN 1069948 A,B	17-03-1993
		DE 69217577 D	03-04-1997
		DE 69217577 T	24-07-1997
		DK 514203 T	14-07-1997
		ES 2097874 T	16-04-1997
		GR 3022721 T	30-06-1997
		JP 5213310 A	24-08-1993
		US 5249416 A	05-10-1993
		US 5425218 A	20-06-1995
		US 5447014 A	05-09-1995
GB 2220910 A	24-01-1990	DE 3824315 A	25-01-1990
		IT 1230737 B	29-10-1991
		JP 2109810 A	23-04-1990

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

SMITH, Norman Ian
FJ CLEVELAND,
40-43 Chancery Lane
London WC2A 1JQ
GRANDE BRETAGNE



PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Rule 71.1)

Date of mailing *(day/month/year)*	19.09.2001
Applicant's or agent's file reference NIS/JY/33421	**IMPORTANT NOTIFICATION**

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/GB00/02147	02/06/2000	07/06/1999

Applicant
MOLINS PLC

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/	Authorized officer
European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Berger, K Tel.+49 89 2399-2576

Form PCT/IPEA/416 (July 1992)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
NIS/JY/33421		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/GB00/02147	02/06/2000	07/06/1999
International Patent Classification (IPC) or national classification and IPC B65B19/22		
Applicant MOLINS PLC		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

   ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement
   - VI ☐ Certain documents cited
   - VII ☒ Certain defects in the international application
   - VIII ☒ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
08/01/2001	19.09.2001
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Augustin, W Telephone No. +49 89 2399 2629

Form PCT/IPEA/409 (cover sheet) (January 1994)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB00/02147

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:
Description, pages:

1-6 as originally filed

Claims, No.:

1-26 as originally filed

Drawings, sheets:

1/4-4/4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

   ☐ the entire international application.

   ☐ claims Nos. .

because:

   ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

   ☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
   see separate sheet

   ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

   ☐ no international search report has been established for the said claims Nos. .

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

   ☐ the written form has not been furnished or does not comply with the standard.

   ☐ the computer readable form has not been furnished or does not comply with the standard.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

   Novelty (N) Yes: Claims 4, 8, 9, 11, 17, 18, 22

	No:	Claims	1-3, 5-7, 10, 12-16, 19-21, 23, 24
Inventive step (IS)	Yes:	Claims	
	No:	Claims	4, 8, 9, 11, 17, 18, 22
Industrial applicability (IA)	Yes:	Claims	1-24
	No:	Claims	

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

Re Item III

Claims 25, 26 are not clear as they contain only general references to the description and the drawings.

Re Item V

1.) The present application does not satisfy the criterion set forth in Article 33(2) PCT because **the subject-matter of Claims 1-3, 5-7, 10, 12-16, 19-21, 23, 24 is not new** in respect of prior art as defined in the regulations (Rule 64(1)-(3) PCT) [see **EP-A-553 636** with regard to claims 1-3, 5-7, 10, 13-16, 19-21, 23, 24 in particular rotary conveyor (4), column 15, line 38 - column 16 line 7 and column 20, lines 4-13; **GB 2 235 913** with regard to claims 1-3, 5-7, 10, 12, 13, 16, 19, 21, 23, 24 in particular heater (41), folder (31); **GB-A-2 206 327** with regard to claims 1-3, 5, 6, 19, 23, 24 in particular carrier (46); note that according to claim 7 the rotational displacement is not round the axis of the rotary conveyor but only relative to the axis of the rotary conveyor, the meaning of the word "end" in the term "end seal heater" of claim 13 is not defined].

2.) The dependent claims 4, 8, 9, 11, 17, 18, 22 do not contain any additional features which, in combination with the features of any claim to which they refer, involve an inventive step since they come within the scope of the customary practice followed by persons skilled in the art [see **EP-A-553 636** with regard to claims 4, 22 in particular rotary conveyor (5) and column 20, lines 14-25; **GB-A-2 235 913** with regard to claims 4, 22, in particular fig. 8 and page 13; **GB-A-2 206 327** with regard to claims 11, 17 (see heaters 49, 50); **EP-A-514 203** with regard to claims 8, 9 in particular heater (60) and column 11, lines 56-58); **GB-A-2 220 910** with regard to claim 18].

Consequently, **the subject-matter of claims 4, 8, 9, 11, 17, 18, 22 lacks an inventive step** (Rule 65(1)(2) PCT).

Re Item VII

The application does not meet the requirements of Article 6 PCT because Claim 12 is not clear as it is not clear relative to what the faces according to claim 12 are inclined.

Re Item VIII

1.) The independent claims are not in the **two-part form** in accordance with Rule 6.3(b) PCT

2.) The features of the claims are not provided with **reference signs** placed in parentheses (Rule 6.2(b) PCT).

3.) The citation "WO97/42097" on page 2 seems to be incorrect as this document refers to an aerosol valve.

PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

International Application No.

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference *(if desired) (12 characters maximum)* NIS/DC/33421

Box No. I TITLE OF INVENTION

Wrapping Apparatus and Method.

Box No. II APPLICANT

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

Molins PLC
No. 11 Tanners Drive,
Blakelands,
Milton Keynes
MK14 5LU
United Kingdom

☐ This person is also inventor.

Telephone No.

Facsimile No.

Teleprinter No.

State *(that is, country)* of nationality: GB

State *(that is, country)* of residence: GB

This person is applicant for the purposes of: ☐ all designated States ☒ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

Thomas William Bailey,
c/o 13 Westwood Way,
Westwood Business Park,
Coventry
CV4 8HS, United Kingdom.

This person is:

☐ applicant only

☒ applicant and inventor

☐ inventor only *(If this check-box is marked, do not fill in below.)*

State *(that is, country)* of nationality: GB

State *(that is, country)* of residence: GB

This person is applicant for the purposes of: ☐ all designated States ☐ all designated States except the United States of America ☒ the United States of America only ☐ the States indicated in the Supplemental Box

☒ Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as: ☒ agent ☐ common representative

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

Smith, Norman Ian
fJ Cleveland
40-43 Chancery Lane
London WC2A 1JQ
United Kingdom

Telephone No. +44 020 7405 5875

Facsimile No. +44 020 7831 0749

Teleprinter No.

☐ **Address for correspondence:** Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Continuation of Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

If none of the following sub-boxes is used, this sheet should not be included in the request.

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

Robert Howard Taylor,
c/o 13 Westwood Way,
Westwood Business Park
Coventry CV4 8HS,
United Kingdom

This person is:
- [ ] applicant only
- [X] applicant and inventor
- [ ] inventor only *(If this check-box is marked, do not fill in below.)*

State *(that is, country)* of nationality: GB

State *(that is, country)* of residence: GB

This person is applicant for the purposes of:
- [ ] all designated States
- [ ] all designated States except the United States of America
- [X] the United States of America only
- [ ] the States indicated in the Supplemental Box

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

This person is:
- [ ] applicant only
- [ ] applicant and inventor
- [ ] inventor only *(If this check-box is marked, do not fill in below.)*

State *(that is, country)* of nationality:

State *(that is, country)* of residence:

This person is applicant for the purposes of:
- [ ] all designated States
- [ ] all designated States except the United States of America
- [ ] the United States of America only
- [ ] the States indicated in the Supplemental Box

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

This person is:
- [ ] applicant only
- [ ] applicant and inventor
- [ ] inventor only *(If this check-box is marked, do not fill in below.)*

State *(that is, country)* of nationality:

State *(that is, country)* of residence:

This person is applicant for the purposes of:
- [ ] all designated States
- [ ] all designated States except the United States of America
- [ ] the United States of America only
- [ ] the States indicated in the Supplemental Box

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

This person is:
- [ ] applicant only
- [ ] applicant and inventor
- [ ] inventor only *(If this check-box is marked, do not fill in below.)*

State *(that is, country)* of nationality:

State *(that is, country)* of residence:

This person is applicant for the purposes of:
- [ ] all designated States
- [ ] all designated States except the United States of America
- [ ] the United States of America only
- [ ] the States indicated in the Supplemental Box

- [ ] Further applicants and/or (further) inventors are indicated on another continuation sheet.

Box No.V DESIGNATION OF STATES

The following designations are hereby made under Rule 4.9(a) *(mark the applicable check-boxes; at least one must be marked)*:

Regional Patent

☐ **AP** **ARIPO Patent:** **GH** Ghana, **GM** Gambia, **KE** Kenya, **LS** Lesotho, **MW** Malawi, **SD** Sudan, **SL** Sierra Leone, **SZ** Swaziland, **TZ** United Republic of Tanzania, **UG** Uganda, **ZW** Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT

☐ **EA** **Eurasian Patent:** **AM** Armenia, **AZ** Azerbaijan, **BY** Belarus, **KG** Kyrgyzstan, **KZ** Kazakhstan, **MD** Republic of Moldova, **RU** Russian Federation, **TJ** Tajikistan, **TM** Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT

☒ **EP** **European Patent:** **AT** Austria, **BE** Belgium, **CH and LI** Switzerland and Liechtenstein, **CY** Cyprus, **DE** Germany, **DK** Denmark, **ES** Spain, **FI** Finland, **FR** France, **GB** United Kingdom, **GR** Greece, **IE** Ireland, **IT** Italy, **LU** Luxembourg, **MC** Monaco, **NL** Netherlands, **PT** Portugal, **SE** Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT

☐ **OA** **OAPI Patent:** **BF** Burkina Faso, **BJ** Benin, **CF** Central African Republic, **CG** Congo, **CI** Côte d'Ivoire, **CM** Cameroon, **GA** Gabon, **GN** Guinea, **GW** Guinea-Bissau, **ML** Mali, **MR** Mauritania, **NE** Niger, **SN** Senegal, **TD** Chad, **TG** Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT *(if other kind of protection or treatment desired, specify on dotted line)* .....

National Patent *(if other kind of protection or treatment desired, specify on dotted line)*:

☐ **AE** United Arab Emirates
☐ **AL** Albania
☐ **AM** Armenia
☐ **AT** Austria
☐ **AU** Australia
☐ **AZ** Azerbaijan
☐ **BA** Bosnia and Herzegovina
☐ **BB** Barbados
☐ **BG** Bulgaria
☐ **BR** Brazil
☐ **BY** Belarus
☐ **CA** Canada
☐ **CH and LI** Switzerland and Liechtenstein
☒ **CN** China
☐ **CR** Costa Rica
☐ **CU** Cuba
☐ **CZ** Czech Republic
☐ **DE** Germany
☐ **DK** Denmark
☐ **DM** Dominica
☐ **EE** Estonia
☐ **ES** Spain
☐ **FI** Finland
☐ **GB** United Kingdom
☐ **GD** Grenada
☐ **GE** Georgia
☐ **GH** Ghana
☐ **GM** Gambia
☐ **HR** Croatia
☐ **HU** Hungary
☐ **ID** Indonesia
☐ **IL** Israel
☐ **IN** India
☐ **IS** Iceland
☐ **JP** Japan
☐ **KE** Kenya
☐ **KG** Kyrgyzstan
☐ **KP** Democratic People's Republic of Korea
☐ **KR** Republic of Korea
☐ **KZ** Kazakhstan
☐ **LC** Saint Lucia
☐ **LK** Sri Lanka
☐ **LR** Liberia
☐ **LS** Lesotho
☐ **LT** Lithuania
☐ **LU** Luxembourg
☐ **LV** Latvia
☐ **MA** Morocco
☐ **MD** Republic of Moldova
☐ **MG** Madagascar
☐ **MK** The former Yugoslav Republic of Macedonia
☐ **MN** Mongolia
☐ **MW** Malawi
☐ **MX** Mexico
☐ **NO** Norway
☐ **NZ** New Zealand
☐ **PL** Poland
☐ **PT** Portugal
☐ **RO** Romania
☐ **RU** Russian Federation
☐ **SD** Sudan
☐ **SE** Sweden
☐ **SG** Singapore
☐ **SI** Slovenia
☐ **SK** Slovakia
☐ **SL** Sierra Leone
☐ **TJ** Tajikistan
☐ **TM** Turkmenistan
☐ **TR** Turkey
☐ **TT** Trinidad and Tobago
☐ **TZ** United Republic of Tanzania
☐ **UA** Ukraine
☐ **UG** Uganda
☒ **US** United States of America
☐ **UZ** Uzbekistan
☐ **VN** Viet Nam
☐ **YU** Yugoslavia
☐ **ZA** South Africa
☐ **ZW** Zimbabwe

Check-boxes reserved for designating States which have become party to the PCT after issuance of this sheet:

☐ .....
☐ .....

Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. *(Confirmation (including fees) must reach the receiving Office within the 15-month time limit.)*

Supplemental Box *If the Supplemental Box is not used, this sheet should not be included in the request.*

*1. If, in any of the Boxes, **the space is insufficient** to furnish all the information: in such case, write "Continuation of Box No. ..." [indicate the number of the Box] and furnish the information in the same manner as required according to the captions of the Box in which the space was insufficient, in particular:*

*(i) **if more than two persons are involved as applicants and/or inventors** and no "continuation sheet" is available: in such case, write "Continuation of Box No. III" and indicate for each additional person the same type of information as required in Box No. III. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below;*

*(ii) if, in Box No. II or in any of the sub-boxes of Box No. III, the indication **"the States indicated in the Supplemental Box"** is checked: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the applicant(s) involved and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is applicant;*

*(iii) if, in Box No. II or in any of the sub-boxes of Box No. III, **the inventor or the inventor/applicant is not inventor for the purposes of all designated States or for the purposes of the United States of America**: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the inventor(s) and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is inventor;*

*(iv) if, in addition to the agent(s) indicated in Box No. IV, there are **further agents**: in such case, write "Continuation of Box No. IV" and indicate for each further agent the same type of information as required in Box No. IV;*

*(v) if, in Box No. V, the name of any State (or OAPI) is accompanied by the indication "**patent of addition**," or "**certificate of addition**," or if, in Box No. V, the name of the United States of America is accompanied by an indication "**continuation**" or "**continuation-in-part**": in such case, write "Continuation of Box No. V" and the name of each State involved (or OAPI), and after the name of each such State (or OAPI), the number of the parent title or parent application and the date of grant of the parent title or filing of the parent application;*

*(vi) if, in Box No. VI, there are **more than three earlier applications whose priority is claimed**: in such case, write "Continuation of Box No. VI" and indicate for each additional earlier application the same type of information as required in Box No. VI;*

*(vii) if, in Box No. VI, **the earlier application is an ARIPO application**: in such case, write "Continuation of Box No. VI", specify the number of the item corresponding to that earlier application and indicate at least one country party to the Paris Convention for the Protection of Industrial Property or one Member of the World Trade Organization for which that earlier application was filed.*

*2. If, with regard to the **precautionary designation statement** contained in Box No. V, the applicant wishes to exclude any State(s) from the scope of that statement: in such case, write "Designation(s) excluded from precautionary designation statement" and indicate the name or two-letter code of each State so excluded.*

*3. If the applicant claims, in respect of any designated Office, the benefits of provisions of the national law concerning **non-prejudicial disclosures or exceptions to lack of novelty**: in such case, write "Statement concerning non-prejudicial disclosures or exceptions to lack of novelty" and furnish that statement below.*

Box No IV (Continued)

Evans, David Charles
Everitt, Christopher James Wilders,
Bernard, Alan Peter
Tribe, Thomas Geoffrey
Crump, Julian Richard John
Brown, Fraser Gregory James
Faulkner, Thomas John
Baldwin, Mark
all of
fJ Cleveland, 40-43 Chancery Lane, London WC2A 1JQ, United Kingdom.

Box No. VI PRIORITY CLAIM ☐ Further priority claims are indicated in the Supplemental Box.

	Filing date of earlier application *(day/month/year)*	Number of earlier application	Where earlier application is: national application: country	regional application:* regional Office	international application: receiving Office
item (1)	7 June 1999	9913223.5	United Kingdom		
item (2)					
item (3)					

☒ The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) *(only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office)* identified above as item(s): (1)

** Where the earlier application is an ARIPO application. it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See Supplemental Box.*

Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA) *(if two or more International Searching Authorities are competent to carry out the international search. indicate the Authority chosen: the two-letter code may be used)* :

ISA /

Request to use results of earlier search; reference to that search *(if an earlier search has been carried out by or requested from the International Searching Authority):*

Date *(day/month/year)* Number Country *(or regional Office)*

Box No. VIII CHECK LIST; LANGUAGE OF FILING

This international application contains the following **number of sheets**:

request	:	5
description (excluding sequence listing part)	:	6
claims	:	4
abstract	:	1
drawings	:	4
sequence listing part of description	:	
Total number of sheets	:	20

This international application is **accompanied by** the item(s) marked below:

1. ☒ fee calculation sheet
2. ☐ separate signed power of attorney
3. ☐ copy of general power of attorney; reference number, if any:
4. ☐ statement explaining lack of signature
5. ☒ priority document(s) identified in Box No. VI as item(s): 1 - see PF 23/77
6. ☐ translation of international application into (language):
7. ☐ separate indications concerning deposited microorganism or other biological material
8. ☐ nucleotide and/or amino acid sequence listing in computer readable form
9. ☒ other *(specify)*: Patents Form No 23/77

Figure of the drawings which should accompany the abstract: 1

Language of filing of the international application: English

Box No. IX SIGNATURE OF APPLICANT OR AGENT

Next to each signature. indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).

Smith, Norman Ian
Authorised Representative.

For receiving Office use only

1. Date of actual receipt of the purported international application:
2. Drawings: ☐ received: ☐ not received:
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:
4. Date of timely receipt of the required corrections under PCT Article 11(2):
5. International Searching Authority (if two or more are competent): ISA /
6. ☐ Transmittal of search copy delayed until search fee is paid.

For International Bureau use only

Date of receipt of the record copy by the International Bureau: